FREEDOM®
Chemical Corporation

FREEDOMTUFF® PRODUCT INFORMATION BULLETIN

FREEDOMTUFF® 2100-HC is a two-component elastomeric spray applied aromatic polyurea that is color stable for use as a protective or waterproof coating that is abrasion, and impact resistant. Used on vertical or horizontal surfaces, and forms a continuous (seamless) membrane of a desired thickness on concrete, metal, fiberglass and geotextile fabrics. Its quick gel and set time allows for single or multiple applications without appreciable sagging.

ADVANTAGES

- USGBC LEED, EQ Credit 4.2: Low-emitting VOC Compliant Materials
- 0 VOC's - 100% solids
- Color stable
- Meets the NACE 6A198 and PDA standards of a pure polyurea
- No noxious odors
- Withstands constant water immersion

USES

- Manhole Rehabilitation
- Wastewater Treatment Facilities
- Pipelines

PROFESSIONAL USE ONLY

Read and understand all the information contained in the Product Information Bulletin's, SDS's and product labels prior to starting any project. Nothing contained in any of Freedom® Chemical Corporation's materials relieves the end user of the obligation to read and follow the warnings and instructions for each of Freedom® Chemical Corporation's products.

PREPARATION

If applied over concrete, concrete should be cured for a minimum of 28 days prior to product application and have at least 3000 psi compressive and 220 psi tensile strength.

Surface preparation is the essential first stage treatment of a substrate before the application of any coating. The performance of a coating is significantly influenced by its ability to adhere properly to the substrate material. It is generally established that correct surface preparation is the most important factor affecting the total success of surface treatment. Surfaces will be clean, dry, and sound, the presence of even small amounts of surface contaminants, dust, efflorescence, laitance, salts, curing compounds, dirt, oil, form release agents, and other foreign matter can physically impair and prevent coating adhesion to the substrate.

Concrete should be shot blasted to a CSP 3-7.
Profile steel between 4-6 mils.

Grinding is permitted only in areas that are inaccessible to shot blasting equipment.

COLOR

Black, White, Grey and Neutral –add color to side B only.
Non-standard colors available upon request.

FreedomTuff® 2100-HC is not UV Stable.

COVERAGE RATES

Freedom® Chemical Corporation's coverage rates for all products is approximate and vary based on type of substrate, substrate porosity, and roughness.
1 gallon (3.79 liters) of FreedomTuff® 1590-HC will cover approximately 1600 square feet 1 mil (0.025mm) thick, and can be applied in one or more passes to achieve a desired thickness.

PACKAGING

50 gallons (189.271) Part-A (Isocyanate) and 50 gallons (189.271) Part-B (Resin) packaged in 55 gallons (208.19 liter) drums.

MIXING PROCEDURES

Do not dilute under any circumstances.

Adequately blend FreedomTuff® 1590-HC Part-B (Resin) with air driven power tools until the mixture and color is consistent making sure not to encapsulate any air.

APPLICATION

Select appropriate FreedomTuff® primer, primer is required on all Substrates, except on properly prepared steel.

Do not apply more primer to substrate than can be coated the same day.

FreedomTuff® 2100-HC is applied using a plural component, high pressure 1:1 ratio heated, spray equipment.

For optimum results proceed with application while air and substrate temperatures are between 32° F (0° C) and 104° F (40° C) 6° (-14.44° C) above the dew point and rising.

Prior to application: Precondition both Part-A and Part-B to 75° F - 80° F (24° C - 27° C) before applying.

Fit part-A with a desiccant drying device.

Proportioner Conditions:

- Static pressure 2800 – 3000psi
- Spraying pressure 2500psi minimum
- Pressure balance 100 variance desirable
- 300 psi variance maximum
- Temperatures preheaters & hose 135°F (57° C) each

FreedomTuff®2100-HC should be sprayed in a smooth pattern maximum 20 mil per pass, to establish uniform thickness and appearance. Allow FT-2100 HC to cool between passes to minimize shrinkage. (crosshatch pattern).

When a FreedomTuff® polyurea is applied in sections, each application must overlap the previous one within 0 – 2 hours by a minimum four (4") to a neat straight line.

Recoat window is within 0-2 hours of application, if not recoated within 0-6 hours, sand, prime and re-apply FreedomTuff® Polyureas.

SPECIFICATION AND FIELD ASSISTANCE

Contact Freedom® Chemical Corporation for assistance.

Jobsite visits by Freedom® Chemical Corporation's employees or its independent agents are solely for determining qualification for warranty.

DISPOSAL

All spilled material, unused contents of containers, empty containers and secondary containment spills/leaks, must be cleaned up and disposed of in accordance with local, state and federal regulations.

LIMITATIONS

The end user should check the suitability of this product and the substrate prior to its application. Freedom® Chemical Corporation assumes no liability for substrate defects.

Substrates that have previously been coated are subject to absorption, which may affect the adhesion of a new coating.

FreedomTuff® Polyurea's have a shelf life of 1 year from the date of manufacture, in factory-sealed containers.

Excess moisture vapor in concrete slabs may result in the polyurea and/or coating to delaminate, discolor or cause improper curing.

Never store directly on concrete surface, always store on pallets.

Do not open until ready to use and keep containers sealed tightly.

PRODUCT QUALITY AND STORAGE

Shipping and storage temperatures for Part-A and Part-B is between 65º F - 90º F (18º C - 32.22º C) at or below 50% Relative Humidity, avoiding freezing temperatures. If shipping or storage temperatures should fall below 65°F (18°C), some crystallization could result. Unless proper action is taken to re-form the original solution, subsequent dimerization will proceed quickly and will deteriorate the assay of the product.

TESTING

Perform an adhesion test prior to starting any coating project.

Test the entire surface of the protective liner by spark testing at 100 volts per dry mil of lining thickness as per NACE Standard RPO 18B or ASTM D-1562 (steel) or ASTM D-4787 (concrete). Mark and repair.

Substrate adhesion test should be performed seven days after application.

WARNING

This product contains Isocyanates.

FREEDOMTUFF® 2100-HC TYPICAL PROPERTIES

TEST METHOD	VALUES WITHOUT GLASS	VALUES WITH GLASS
MIX RATIO BY VOLUME	1A:1B	1A:1B
HARDNESS: SHORE D - ASTM D-2240	80 – 85	80 – 85
DENITY G/CC - DIN 53479	1.023	TBD
TEAR RESISTANCE, DIE C - ASTM D-624	596 PLI	TBD
TENSILE STRENGTH - ASTM D-412	6,426 PSI	>8,500 PSI
ELONGATION - ASTM D-412	16.5%	5%
FLEXURAL STRENGTH - ASTM D-790	10,127 PSI	16,000 PSI
FLEXURAL MODULUS - ASTM D-790	225,657 PSI	330,000 PSI
TABER ABRASION - ASTM D-3389	103/1000 REV MG LOSS H-18 WHEEL	103/1000 REV MG LOSS H-18 WHEEL
SOLIDS % - ASTM D-2697	100	100
VISCOSITY AT 75°F (24°C)-BROOKFIELD	AMBER 200 – 400 CPS	AMBER 200 – 400 CPS
VISCOSITY AT 75°F (24°C)-BROOKFIELD	TAN 300 - 600 CPS	TAN 300 - 600 CPS
VOC,S - ASTM D-2369-81	0 LB/GALLON, 0 GRAMS/LITER	0 LB/GALLON, 0 GRAMS/LITER
GEL TIME - SPRAYED	4 - 7 SECONDS	4 - 7 SECONDS
TACK FREE TIME - SPRAYED	6 - 10 SECONDS	6 - 10 SECONDS
SPECIFIC GRAVITY - ASTM D-1475-988	AMBER1.23 TAN 1.053 G/CC	AMBER1.23 TAN 1.053 G/CC
IMPACT TEST – DART	NO VISIBLE DAMAGE TO NON-IMPACT SIDE	NO VISIBLE DAMAGE TO NON-IMPACT SIDE
ANSI 124.1.2 SEC 5.6 - BURN TEST	PASSED	PASSED

Incredible Stuff, Exceptional Service, and Friendly People™